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EXAMINER
NGUYEN U BA

ART UNIT	PAPER NUMBER
2732	3

08/28/98
DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/795,752

Applicant(s)

Koji Arai

Examiner

Phuongchau

Group Art Unit

2732



- Responsive to communication(s) filed on _____.
- This action is FINAL.
- Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- Claim(s) 1-12 is/are pending in the application.
- Of the above, claim(s) _____ is/are withdrawn from consideration.
- Claim(s) _____ is/are allowed.
- Claim(s) 1-12 is/are rejected.
- Claim(s) _____ is/are objected to.
- Claims _____ are subject to restriction or election requirement.

Application Papers

- See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- The drawing(s) filed on _____ is/are objected to by the Examiner.
- The proposed drawing correction, filed on _____ is approved disapproved.
- The specification is objected to by the Examiner.
- The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- All Some* None of the CERTIFIED copies of the priority documents have been received.
- received in Application No. (Series Code/Serial Number) _____.
- received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- Notice of References Cited, PTO-892
- Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- Interview Summary, PTO-413
- Notice of Draftsperson's Patent Drawing Review, PTO-948
- Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2, and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugihara (U.S.Pat. 5,757,785) in view of Tsinberg et al (U.S.Pat. 4,890,283).

For claims 1,2, and 5-7, Sugihara discloses a signal going into a rata conversion circuit, the circuit converts multi-directional signals having the second transmission rate lower than the first transmission rate (see col.2, line 56-59 and col.8, line 37-41) with different frequencies (see col.3, line 38). Sugihara further shows a system with a distributed and detection circuit to monitor any fault in the transmission path (see col.4, line 26-31 and line 39-41, and col.5, line 56-62). However, Sugihara does not disclose that the second transmission rate is $1/(n-1)$ of first transmission rate and the transmitting $n-1$ signals of second transmission rate through radio transmission paths between $n-1$ radio base station and a terminal station connected to at least one terminal unit. Tsinberg et al discloses digital signals having equal bit rates (see col.1, line 55-68, col.5, line 43-47), (col.6, line 15-23, 62-68), (col.7, line 55 to col.8, line 3), and (see figure 2b

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and 6). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the reduced equal bit rates in place of the different frequencies to achieve faster and higher in transmission and reception of the radio systems, and to understand that there must be a base station which transmits signals to another terminal which receives signals in radio transmission.

4. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugihara and Tsinberg et al as applied to claim 1 above, and further in view of Meier et al (U.S.Pat. 5,295,154), Burger et al (U.S.Pat. 4,777,634), and Takatori et al (U.S.Pat. 5,475,676).

For claims 3-5, Sugihara and Tsinberg et al disclose as discussed as above. However, Sugihara and Tsinberg et al do not disclose the compensating of data in interrupted transmission path. Meier et al discloses the communication between two terminals (an RF terminal and base station) transmitting data in RF data communication systems (see col.1, line 29-36). Burger et al discloses in the background of the invention that the summation of “n-digital signals” into “a sum signal” in the recovery of loss data (see col.1, line 35-45). Takatori et al discloses the protection line which will recover data when failures occur in transmission (see col.1, line 21-35). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to add a protection line into the transmission between two terminals to protect data when failures happen in transmission. Improved protection line would have been desirable feature in transmission data in radio communication systems.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugihara and

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Tsinberg et al as applied to claims 1-6 above, and further in view of Sabel (U.S.Pat. 5,539,751).

For claim 8, Sugihara and Tsinberg et al disclose as discussed as above. However, Sugihara and Tsinberg et al do not disclose one summation means for generating a fourth signal by summing data at least k ($k \leq (n-1)$) signals of $n-1$ third signals of second transmission rate every time slots. Sabel discloses a signal which "is formed by summing the correlation values" (see Abstract, line 10-13, and col.2, line 32-40, line 57-64) in a demultiplexer synchronizer in digital transmission system. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the synchronization method by summing correlation values to form a signal of demultiplexer synchronizer for receiving data in digital transmission system.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugihara (U.S.Pat.5,757,785) and Tsinberg et al as applied in claims 1-6 above, and further in view of Iino (U.S.Pat. 5,771,225).

Claim 9 is rejected with the same reason as set forth in claims 1-6. However, Sugihara and Tsinberg do not disclose when at least one of transmission paths is interrupted, switching is used for forwarding a signal to be transmitted through the interrupted transmission paths to at least one redundant radio base station n. Iino discloses a back up system having a protection unit substituting for a failure unit by switching control (see col.1, line 17-20, and line 24-029), and (see col.3, line 62 to col.4, line 11). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to add a back up system provides a

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switching to switch the protection unit for a working unit which failed, into a radio transmission path. Improved transmission with back up system would highly desirable in an interrupted transmission path of radio transmission data communication.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugihara (U.S.Pat. 5,757,785) and Tsinberg et al in view of Ikenoue (U.S.Pat. 5,220,566).

Claim 10 is rejected with the same reasons as set forth in claim 1. However, Sugihara and Tsinberg et al do not disclose a receiver receiving third signals of second transmission rate transmitted from n-1 radio base station, and rate conversion-and-multiplex for converting and multiplexing receiving third signals of second transmission rate into signals of first transmission rate. Ikenoue discloses a multiplexer having a receiver for receiving data transmitted (see Abstract, line 3-8), and (see col.2, line 14-24). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a receiver of a radio terminal station which uses to receive signals from another radio base station in transmitting data.

8. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugihara (U.S.Pat. 5,757,785) and Tsinberg et al (U.S.Pat.4,890,283) in view of Iino (U.S.Pat. 5,771,225).

Claims 11 and 12 are rejected with the same reasons as set forth in claims 1, 5 and 9. However, Sugihara and Tsinberg et al do not disclose that second line monitoring means for monitoring interruption of transmission paths, and second switching means for providing the

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signal transmitted from radio base station to rate conversion and multiplex means. Iino discloses the back up system having more than one switching and a protection unit (see col.7, line 60-67) and (see col.12, line 34 to col.23, line 10). Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to add more switching and/or monitoring fault detectors in transmission paths to have more than one back up system to secure the transmission paths in transmitting data of communication system without interruption in case the transmission was interrupted and the first back up system failed.

9. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burger et al (U.S.Pat. 4,777,634), Takatori et al (U.S.Pat. 5,475,676) as applied to claim 8 above, and further in view of Sabel (U.S.Pat. 5,539,751).

For claims 11 and 12, Burger et al and Takatori et al disclose as discussed as above. However, Burger et al and Takatori et al do not disclose that second summation means when at least one of transmission paths is interrupted by summing data of every time slots of at least k signals of signals transmitted from n-1 radio station except for a signal to be transmitted through an interruption transmission path, and subtraction means for generating subtraction data between data of the signal transmitted from redundant radio station n and data of fifth signal generated in second summation means, and switching means for providing subtraction data generated in subtraction means to rate conversion and multiplex means. Sabel discloses that the change of signal will be depended on the errors being detected out of synchronization state of transmission (see col.3, line 1-10). Therefore, it would have been obvious to a person of

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ordinary skill in the art at the time the invention was made to understand that if there is an interruption in the transmission paths of radio systems with back up system, the failed system will be detected out of the transmission path backup systems and the switching will control the protection units substituting for the failed system.

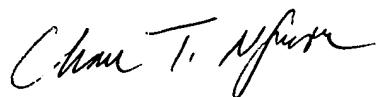
10. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugihara (U.S.Pat. 5,757,785) and Ikenoue (U.S.Pat. 5,220,566).

Claims 11 and 12 are rejected with the same reasons as set forth in claim 10.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchau Ba Nguyen whose telephone number is (703) 305-0093.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Olms, can be reached on (703) 305-4703. The fax number for this group is (703)305-9509.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-3900.



CHAU NGUYEN
PRIMARY EXAMINER

PN

August 7, 1998